

## Three Species of Spiders of the Families Clubionidae and Thomisidae (Araneae) from Japan<sup>1)</sup>

Hirotsugu ONO<sup>2)</sup>

小野展嗣<sup>2)</sup>: 日本産フクログモ科およびカニグモ科 (クモ目)  
のクモ 3 種<sup>1)</sup>

**Abstract** Two new species of sac spiders of the family Clubionidae are described from Japan under the names *Clubiona ogatai* sp. nov. (from Aichi Pref.) and *C. iharai* sp. nov. (from Hiroshima Pref.). The male of the crab spider, *Xysticus transversomaculatus* BÖSENBERG et STRAND, 1906, is described for the first time. On the basis of the male characteristics, the species is transferred from the species group of *Xysticus luctans* to that of *X. locuples*.

The present paper deals with descriptions of three species of spiders of the families Clubionidae and Thomisidae from Japan. Two new sac spiders of the genus *Clubiona* are described from western Honshu under the names *C. ogatai* sp. nov. and *C. iharai* sp. nov. Both the species have peculiar male palpal organ; especially, the latter species is distinguishable from all the other congeners by the embolus covered by membranous embolic apophysis. The reports of the clubionids forms a part of the series of a revisional study of the spiders of the genus *Clubiona* from Japan and the adjacent regions (ONO, 1986 a, b, 1989, 1990, 1991, 1992, 1993, 1994 a, b; ONO & HAYASHI, 1990, etc.).

On the other hand, the present report of the crab spider *Xysticus transversomaculatus* BÖSENBERG et STRAND, 1906, is a supplement to my previous paper on the revision of the family Thomisidae of Japan (ONO, 1988). The male of the species is described for the first time.

All the type specimens of the new species described in the present paper are deposited in the collection of the Araneae at the National Science Museum, Tokyo (NSMT-Ar).

The following abbreviations are used: ALE, anterior lateral eye(s); AME, anterior median eye(s); AME–ALE, distance between AME and ALE; AME–AME, distance between AMEs; PLE, posterior lateral eye(s); PME, posterior median eye(s); PME–PLE, distance between PME and PLE; PME–PME, distance between PMEs.

1) This study is supported by the Grants-in-aid Nos. 04640694 and 07640944 for Scientific Research from the Ministry of Education, Science, Sports and Culture, Japan.

2) Department of Zoology, National Science Museum, 3–23–1, Hyakunin-chō, Shinjuku-ku, Tokyo, 169 Japan

国立科学博物館動物研究部 〒169 東京都新宿区百人町 3–23–1

Accepted August 8, 1995

Before going further, I wish to express my sincere thanks to Messrs. Yoh IHARA, Hiroshima, Ken-ichi KUMADA, Mie, Kiyoto OGATA, Aichi, Eiichi SHINKAI, Tokyo, Katsuhiro SUZUKI, Saitama, and Nobuki YASUDA, Hokkaido, for their offering invaluable specimens.

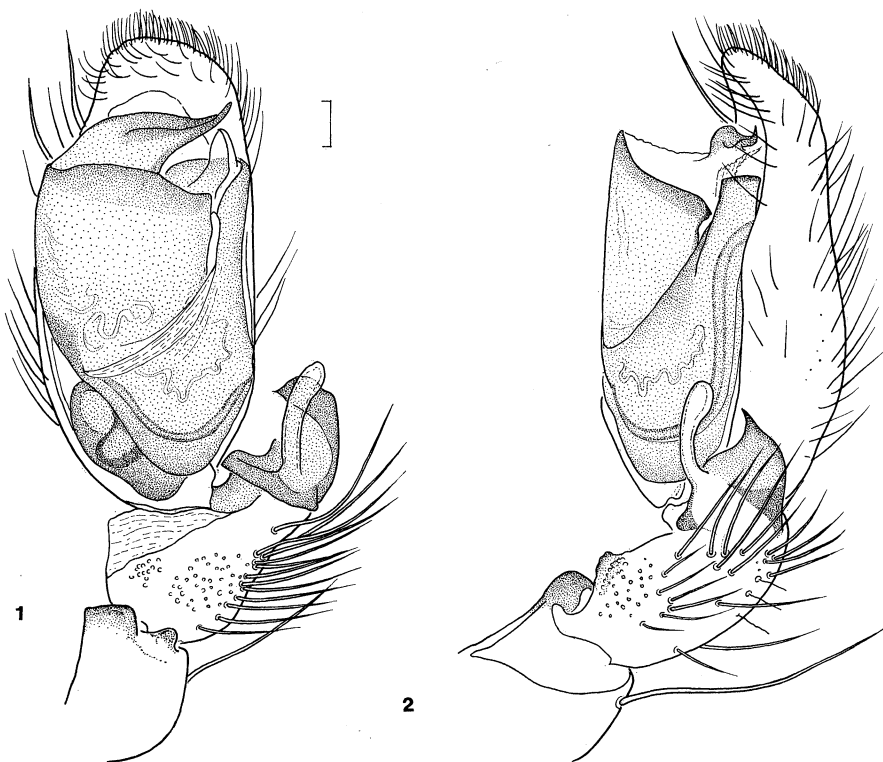
Family Clubionidae

*Clubiona ogatai* sp. nov.

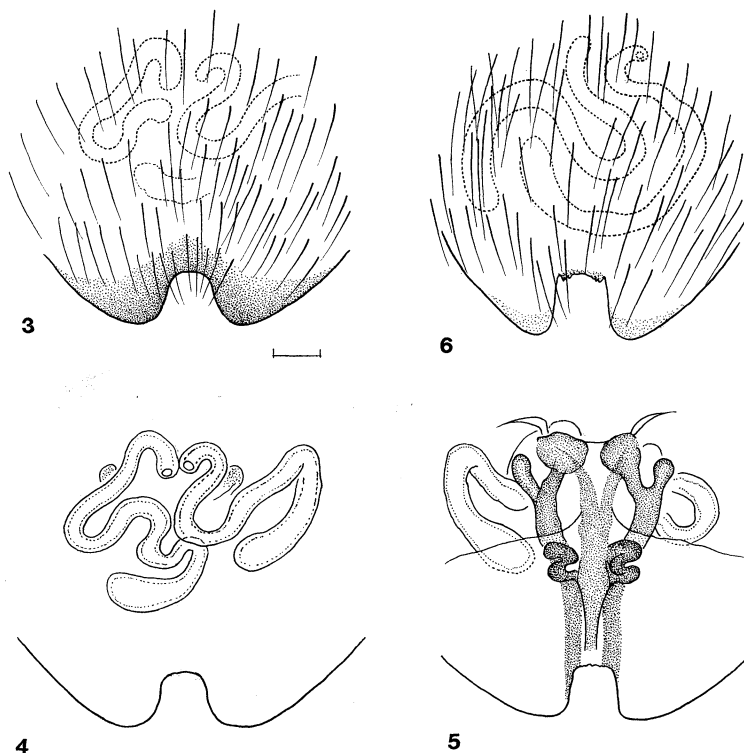
(Figs. 1–8)

*Type series.* Holotype: ♂, Dantouradani, 960 m alt., Shitara-chô, Kitashitara-gun, Aichi Pref., Japan, 30-IX-1991, K. OGATA leg. (NSMT-Ar 3274); allotype, ♀, same data as for the holotype (NSMT-Ar 3275); paratypes: 2♀2♂, same data as for the holotype, 6♀6♂, same locality and collector as for the holotype: 1♀2♂, 11-IX-1993, 2♀2♂, 27-XI-1991, 3♀1♂, 27-X-1991, 1♂, 10-XI-1991; 1♀, Kada, 420 m alt., Shitara-chô, Aichi Pref., 4-V-1991, K. OGATA leg. (NSMT-Ar 3276–3282).

*Description* (based on the male holotype and female allotype). Measurement.



Figs. 1–2. *Clubiona ogatai* sp. nov., 1♂ paratype. —1, Male palp, ventral view; 2, same, retrolateral view. (Scale: 0.1 mm.)



Figs. 3–6. *Clubiona ogatai* sp. nov. — 3, Epigynum, ventral view; 4, spermathecal gland, ventral view; 5, female genitalia, dorsal view; 6, epigynum, ventral view. 3–5, Allotype; 6, 1♀ paratype. (Scale: 0.1 mm.)

Body length ♀ 6.22 mm, ♂ 5.26 mm; prosoma length ♀ 3.00 mm, ♂ 2.44 mm, width ♀ 2.07 mm, ♂ 1.73 mm; opisthosoma length ♀ 3.11 mm, ♂ 2.81 mm, width ♀ 1.85 mm, ♂ 1.26 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: ♀, I 7.66 mm ( $2.22+1.19+2.00+1.44+0.81$ ), II 7.73 mm ( $2.37+1.11+2.00+1.44+0.81$ ), III 6.74 mm ( $1.96+0.96+1.56+1.70+0.56$ ), IV 9.70 mm ( $2.74+1.19+2.22+2.81+0.74$ ), ♂, I 7.36 mm ( $2.07+0.96+2.00+1.48+0.85$ ), II 7.51 mm ( $2.22+0.96+2.00+1.52+0.81$ ), III 6.29 mm ( $1.85+0.81+1.37+1.67+0.59$ ), IV 8.59 mm ( $2.30+0.89+2.07+2.59+0.74$ ).

Prosoma. Eyes subequal in size, ALE the largest, PME the smallest; ALE/AME ♀♂ 1.10, PLE/PME ♀ 1.13, ♂ 1.00, AME–AME/AME–ALE ♀ 1.20, ♂ 1.40, PME–PME/PME–PLE ♀ 1.27, ♂ 1.50, median ocular area wider than long (length/width ♀ 1.44, ♂ 1.31), wider behind than in front (anterior width/posterior width ♀ 0.70, ♂ 0.76), clypeus/AME–AME ♀ 0.25, ♂ 0.29. Promargin of cheliceral fang furrow with one large and five small teeth (♀♂), and retromargin with four (♀) or three (♂) small teeth (Figs. 7–8).

Spiniformation of legs. ♀, Femora: I–IV dorsal 0–1–0–1, prolateral 0–0–0–1, III–IV retrolateral 0–0–0–1; patellae: III–IV retrolateral 1; tibiae: I–II ventral 2–2,

III–IV pro- and retrolateral 1–1, respectively, III ventral 1–1–0, IV ventral 1–1–1; metatarsi: I–II ventral 2–0–0, III–IV prolateral 1–2–2 (apical), III retrolateral 1–0–2 (apical), ventral 2–0–2 (apical), IV retrolateral 1–1–2 (apical), ventral 2–1–2 (apical). ♂, Femora: I–IV dorsal 1–0–1–1, pro- and retrolateral 0–0–0–1, respectively; patellae: III–IV retrolateral 1; tibiae: I–II ventral 2–2, III–IV pro- and retrolateral 1–1, respectively, ventral 2–2–1 (apical); metatarsi: 1–II ventral 2–0–0, III prolateral 1–1–2 (apical), retrolateral 1–0–2 (apical), ventral 2–0–2 (apical), IV prolateral 1–2–2 (apical), retrolateral 1–1–2 (apical), ventral 2–1–2 (apical). The apical part of the metatarsi III–IV with six spines.

Male palp (Figs. 1–2). Tibial apophysis with two processes: the basal one strongly sclerotized and with a dorsal tooth, the appendicular one a transparent membranous leaflet, digitiform and long. Tegular apophysis wide and sclerotized, conductor small and membranous, embolus large, thick, apically bifid.

Female genitalia (Figs. 3–6). The posterior part of epigynum strongly sclerotized and lingulated, with a hollow at the middle, intromittent orifices situated at the bottom of the hollow, near epigastric furrow, and not visible in ventral view. Intromittent canal relatively short, parallel, spermatheca small with a digitiform atrium, spermathecal gland tubular, very long and changeable in shape (*cf.* Figs. 3 and 6).

Coloration and markings. ♀♂, Prosoma pale yellowish brown, chelicerae reddish, maxillae, labium, palps and legs pale yellowish brown, sternum pale yellow, opisthosoma wholly beige, without any marking.

*Variation.* Body length ♀ 5.55–8.00 mm, ♂ 5.26–7.15 mm.

*Remarks.* This new species is closely related to *Clubiona kumadaorum* ONO, 1992, described from Kanagawa Pref., Japan, but can be distinguished from the latter by the shape of embolus. The female of *C. kumadaorum* is unknown. The male palps of some specimens of *Clubiona* from Okayama and Hiroshima Pref., Chugoku District, also resemble those of *C. ogatai* and *C. kumadaorum*. It could be possible that I examined some aspects of a variable species-group distributed in southwestern part of Honshu from Kanagawa to Hiroshima Pref.

The species is dedicated to Mr. Kiyoto OGATA, Chiryu, Aichi Pref., Japan.

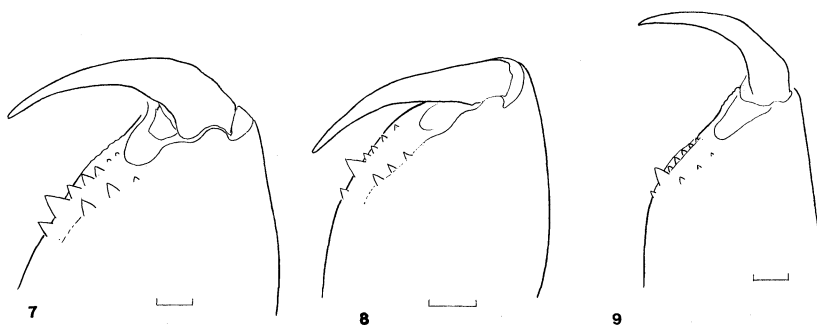
### *Clubiona iharai* sp. nov.

(Figs. 9–11)

*Type specimen.* Holotype: ♂, Chôjabara, Geihoku-chô, Yamagata-gun, Hiroshima Pref., Japan, 26–VI–1991, Y. IHARA leg. (NSMT–Ar 3283).

*Description* (based on the male holotype; female unknown). *Measurement.* Body length 4.60 mm; prosoma length 2.30 mm, width 1.56 mm; opisthosoma length 2.37 mm, width 1.19 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: I 6.59 mm (1.81+0.93+1.85+1.33+0.67), II 6.56 mm (1.85+0.93+1.78+1.33+0.67), III 5.52 mm (1.48+0.81+1.19+1.56+0.48), IV 7.81 mm (2.07+0.85+1.85+2.37+0.67).

*Prosoma.* Eyes: lateral eyes larger than median eyes in both the rows, ALE/AME 1.50, PLE/PME 1.05, AME–AME/AME–ALE 2.00, PME–PME/PME–PLE 1.67, median ocular area wider than long (length/width 1.36), wider behind than in front (anterior width/posterior width 0.63), clypeus relatively wide (clypeus/AME–AME 0.40). Chelicera with a large tooth and five small teeth on promargin of fang

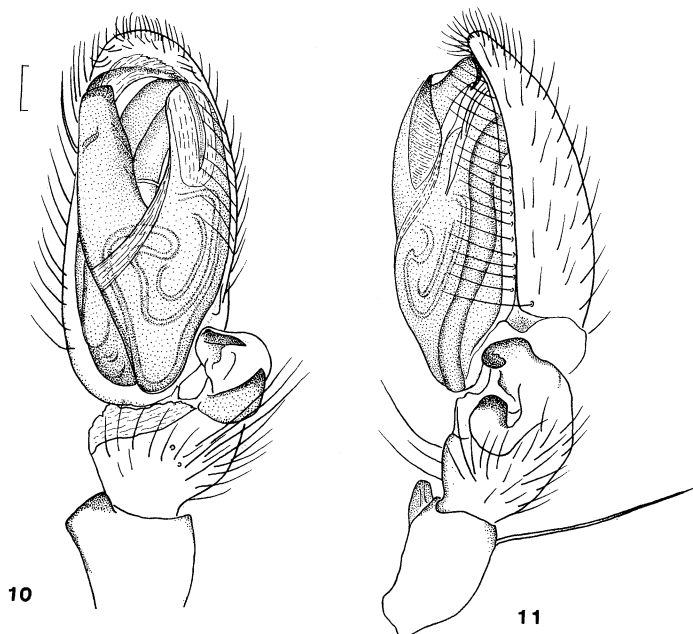


Figs. 7-9. Chelicerae.—7, *Clubiona ogatai* sp. nov., ♀ allotype; 8, same species, 1♂ paratype; 9, *Clubiona iharai* sp. nov., ♂ holotype. (Scales: 0.1 mm.)

furrow, and three small teeth on the promargin (Fig. 9).

Spiniformation of legs. Femora: I-IV dorsal 0-1-1-1, pro- and retrolateral 0-0-0-1, respectively; patellae: III-IV retrolateral 1; tibiae: I-II ventral 2-2-0, III-IV prolateral and ventral 1-1, respectively, retrolateral 1; metatarsi: I-II ventral 2-0-0, III-IV prolateral 1-2-2 (apical), ventral 2-1-1 (apical), III retrolateral 1-0-2 (apical), IV retrolateral 1-1-2 (apical).

Male palp (Figs. 10-11). Patella with a prolateral apophysis strongly sclerotized. Tibial apophysis divided into two parts: the proximal apophysis digitiform,



Figs. 10-11. *Clubiona iharai* sp. nov.—10, Male palp, ventral view; 11, same, retrolateral view. (Scale: 0.1 mm.)

distally expanded; the distal apophysis with a sclerotized tooth. Embolus spiniform, long, covered by membranous apophysis derived from the apical part of tegulum.

Coloration and markings. Prosoma pale yellow, chelicerae, maxillae and labium pale yellowish brown, sternum yellowish white, palps and legs pale yellow, opisthosoma light beige with indistinct white markings.

*Remarks.* This species is peculiar in the genus *Clubiona*, having embolus covered by membranous apophysis. I could not find any close relative to this new species. For the time being, *Clubiona iharai* is regarded as constituting a new and monotypic species-group with the unique structure of male palp.

This new species is dedicated to Mr. Yoh IHARA, Hiroshima Pref.

### Family Thomisidae

#### *Xysticus transversomaculatus* BÖSENBERG et STRAND, 1906

(Figs. 12–14)

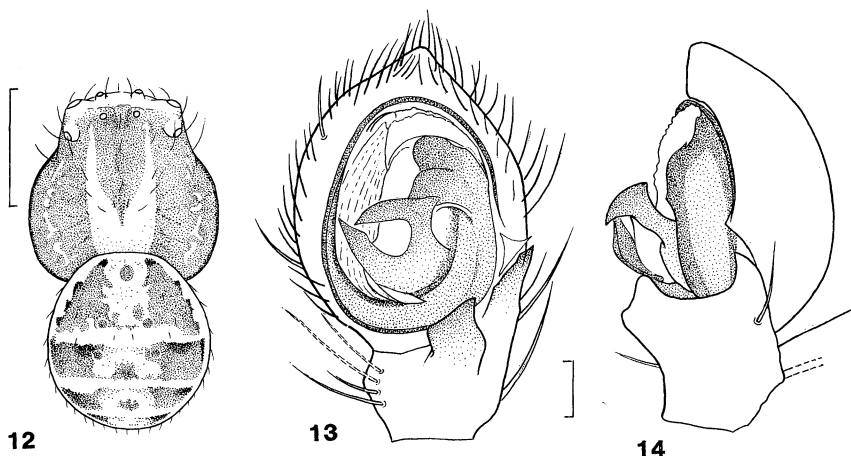
*Xysticus transversomaculatus* BÖSENBERG et STRAND, 1906, p. 263, pl. 13, fig. 305 (female holotype from Saga, Japan, W. DÖNITZ leg., in Senckenberg Museum, Frankfurt am Main, Germany, examined.).—ONO, 1988, p. 105, figs. 96–98.—ONO & YASUDA, 1992, p. 4.

*Specimens examined.* 1♂, Sarobetsu, northern Hokkaido, Japan, 9–VI–1991, N. YASUDA leg.; 1♂, Chiyoda-ku, Tokyo, 1976, E. SHINKAI collection, cf. SHINKAI (1977); 1♂, Garden of Azabu Prince Hotel, Tokyo, 27–VII–1973, K. ARIMA and H. ONO leg.; 1♂, Nanasawa, Tanzawa Mts., Kanagawa Pref., 9–V–1979, K. KUMADA leg.; 1♂, Atsugi, Farm of Tokyo University of Agriculture, Kanagawa Pref., 21–29–VII–1979, K. SUZUKI leg.; 1♂, Kamoda-chô, Okazaki-shi, Aichi Pref., 3–VIII–1988, K. OGATA leg.; 3♀ 1 juv., Hosoya-chô, Toyohashi-shi, Aichi Pref., 14–X–1990, K. OGATA leg.; 1♂, Koijigahama, Atsumi-chô, Atsumi-gun Aichi Pref., 13–IX–1989, K. OGATA leg. (NSMT–Ar 3284–3291).

*Description* (based on the males examined; description of female see ONO, 1988, pp. 105–106, figs. 96–98). Measurement. Body length 2.96–3.56 mm; prosoma length 1.70–2.00 mm, width 1.60–1.96 mm; opisthosoma length 1.50–1.81 mm, width 1.34–1.74 mm; lengths of legs of 1♂ from Chiyoda-ku, Tokyo [total length (femur + patella + tibia + metatarsus + tarsus)]: I 5.24 mm (1.64 + 0.80 + 1.20 + 1.00 + 0.60), II 5.68 mm (1.64 + 0.84 + 1.20 + 1.28 + 0.72), III 3.60 mm (1.16 + 0.52 + 0.72 + 0.72 + 0.48), IV 3.80 mm (1.20 + 0.52 + 0.78 + 0.82 + 0.48).

Prosoma nearly as long as wide (length/width 0.98–1.06), with normal setae; ALE > PLE > PME ≥ AME, ALE/AME 1.66–2.00, PLE/PME 1.23–1.34, AME–AME/AME–ALE 1.33–1.88, PME–PME/PME–PLE 0.81–0.89, median ocular area wider than long (length/width 0.86–0.97), as wide as long or wider behind than in front (anterior width/posterior width 0.93–1.00), clypeus/AME–AME 0.68–0.75. Labium length/width 1.33–1.50, sternum length/width 1.00–1.25. Tarsal claws of legs with three teeth.

Spiniformation of legs of the male used in the measurement of legs. Femora: I dorsal 0–0–1–1–1, prolateral 0–1–1–1–0, II–IV dorsal 1–1–1–1; patellae: I–IV dorsal 1–0–1 (weak), I pro- and retrolateral, II retrolateral 1, respectively; tibiae: I–IV dorsal 1–1–0, I–II pro- and retrolateral 1–1–1, respectively, ventral 2–2–2–2 (apical), III–IV pro- and retrolateral 1–1, respectively, III ventral 0–2–2 (apical),



Figs. 12-14. *Xysticus transversomaculatus* BÖSENBERG et STRAND, 1906, 1♂ from Chiyodaku, Tokyo.—12, Pro- and opisthosomata, dorsal view; 13, male palp, ventral view; 14, same, retrolateral view. (Scales: 12, 1 mm; 13-14, 0.1 mm.)

IV ventral 2-2-2 (apical); metatarsi: I-IV prolateral 1-1-2 (apical), I retrolateral 0-1-1 (apical), II retrolateral 1-1-1 (apical), III-IV retrolateral 1-1-2 (apical), I-II ventral 2-2, III-IV ventral 2.

Male palp (Figs. 13-14). Tibia with ventral and retrolateral apophyses; the ventral apophysis normal, the retrolateral one wide and short, not pointed. Bulb with two tegular apophyses; the median one heeled, the apical one not strongly curved, short.

Opisthosoma longer than wide (length/width 1.04-1.12), with normal hairs.

Coloration and markings (Fig. 12). Prosoma brown, lighter at the middle, with a V-shaped white marking at the middle and some white spots on each side, head white; chelicerae, maxillae and labium light brown, sternum light beige mottled with brown; femora and patellae I-II brown mottled with white and dark brown, the other parts of the legs yellowish brown mottled with brown. Opisthosoma dorsum white, light beige or light yellowish brown with distinct blackish brown markings, venter greyish white.

*Range.* Japan (Hokkaido, Honshu).

*Biology.* Found on glass in low lands near the sea; rare.

*Remarks.* The male of this species was described herewith for the first time. Having examined only female specimens (ONO, 1988), I put this species in the species group of *Xysticus luctans*. However, *Xysticus transversomaculatus* should belong to the *locuples* group on the basis of the male characteristics, especially of the shape of tegular apophyses. The species is closely related to *Xysticus kurilensis* STRAND, 1907, but can easily be distinguished from the latter by the body size and the shape of setae on pro- and opisthosomata.

## 摘 要

日本産フクログモ科の2新種, *Clubiona ogatai* sp. nov. (オガタフクログモ—新称—)

および *C. iharai* sp. nov. (イハラフクログモ—新称—) を記載した。カニグモ科の 1 種 *Xysticus transversomaculatus* BÖSENBERG et STRAND, 1906 (ヨコフカニグモ) の雄を初めて記載した。同種の雄の触肢の形態的特徴をもとに検討した結果、従来の *luctans* 種群から、*locuples* 種群へ所属を変更した。

### References

- BÖSENBERG, W., & E. STRAND, 1906. Japanische Spinnen. *Abh. senckenbg. naturforsch. Ges.*, **30**: 93–373, 400–422, pls. 3–16.
- ONO, H., 1986 a. A new spider of the group of *Clubiona corticalis* (Araneae, Clubionidae) found in Japan. In UENO, S.-I. (ed.): *Entomological Papers presented to Yoshihiko Kurosawa on the Occasion of his Retirement*, pp. 19–25. Coleopterists' Association of Japan, Tokyo.
- 1986 b. Little-known Japanese spider, *Clubiona zilla* (Araneae, Clubionidae) representative of a new and peculiar species-group. *Bull. natn. Sci. Mus., Tokyo*, (A), **12**: 117–121.
- 1988. A Revisional Study of the Spider Family Thomisidae (Arachnida, Araneae) of Japan. ii+252, 1 col. pl. National Science Museum, Tokyo.
- 1989. New species of the genus *Clubiona* (Araneae, Clubionidae) from Iriomotejima Island, the Ryukyus. *Bull. natn. Sci. Mus., Tokyo*, (A), **15**: 155–166.
- 1991. Two interesting species of the genus *Clubiona* (Araneae, Clubionidae) from Hokkaido, Japan. *Ibid.*, **17**: 139–143.
- 1992. Two new *Clubiona* spiders (Araneae: Clubionidae) from Japan. *Acta arachnol.*, **41**: 187–191.
- 1993. Spiders of the genus *Clubiona* (Araneae, Clubionidae) from eastern Hokkaido, Japan. *Mem. natn. Sci. Mus., Tokyo*, (26): 89–94.
- 1994 a. Two species of the spider genus *Clubiona* (Araneae: Clubionidae) new to the Japanese fauna. *Acta arachnol.*, **43**: 37–41.
- 1994 b. Spiders of the genus *Clubiona* from Taiwan (Araneae: Clubionidae). *Ibid.*, **43**: 71–85.
- & H. HAYASHI, 1990. A list of *Clubiona* species, (Araneae, Clubionidae) of Eurasia. *Kishidaia*, (60): 5–14. (In Japanese.)
- & N. YASUDA, 1992. Records of thomisid spiders (Arachnida, Araneae) from Hokkaido, Japan. *Bull. Sounkyo Mus. nat. Hist.*, (12): 1–13. (In Japanese, with English summary.)
- SHINKAI, E., 1977. [Epigeal spiders from the Imperial Palace.] *Edaphologia, Tokyo*, (16): 26–34. (In Japanese.)